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Editorial

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1 Dimensions of social media use in academia

For the last few decades, the Internet continually has changed scholarly workflows across disciplines [11]. It has affected how scholars search for publications, retrieve information and communicate and distribute their own research findings. Online communication and collaboration influences academic institutions as well as academic publishers, science journalists and students. Within this special issue, we focus on social media and its influence on academic practice.

Almost ten years ago, the term “Web 2.0” was created to refer to an upcoming new generation Internet, which no longer contained only static websites. No longer would only a few individuals or institutions provide content; user contributions would instead drive the Web [8]. Today, user-generated content and online social networks, essential characteristics of Web 2.0 (aka the Social Web), have become almost omnipresent. Community-based Internet services are no longer a new phenomenon. Social networks and social media platforms can be found anywhere on the most popular websites in the world: Face- book, YouTube, Wikipedia, Twitter and LinkedIn all feature in the Alexa.com top 10 ranking of frequently-used websites (as of June 2014).

Such social media platforms continue to transform communication practices in many areas of daily life - from news to online shopping, from political communication to fandom - and they also have the potential to bring about significant changes in academic practice and in scholars’ working environments. They can help to make research projects and results accessible to a wider public, to organize collaboration among research groups, to connect experts in specific fields of expertise, to find or share relevant literature or to create inspiring learning environments. In addition to the universally popular social media sites mentioned above (which are being used in different academic settings), there are also services that explicitly address scholars as the target audience. Many include

networking and/or reference management functionalities, e. g. Academia.edu, Mendeley, ResearchGate or CiteUlike.

But the question remains: how are social media sites actually used in academia? Do scholars make use of the full potential of specific tools? And if so, which new challenges arise with these developments? This special issue contributes to these questions by addressing two dimensions of how social media is affecting academia: as a communication tool and as a new data source.

1.1 Social media as a means for scholarly communication and collaboration

The first part of this special issue includes studies investigating the role of social media as novel tools used by scholars in their daily routines or in specific work-related tasks. This direction of social media research inquires into how scholars connect with one another via social networks, how they use online tools for collaboration, how they find relevant literature through social networks or social bookmarking systems, how their work becomes visible through social media or how they interact with the public and/or with students. Such questions make up the current research objectives of projects related to fields known as Science 2.0 [12], eScience [4] or cyberscience [7].

Many researchers feel that social media has the potential to help scholars collaborate and communicate more easily, but the uptake of social media usage among scientists has been rather slow [6,10]. These and other studies seem to indicate that different disciplines develop different cultures around using social media, but comprehensive comparisons are rare. While some researchers have yet to become very active in social media, they may still leave digital traces - because others may refer to their work online, for instance. Scientific papers maybe discussed in blog posts, shared in bookmarking systems or referenced in tweets or other status updates. In the future, such activities might become new indicators of scholarly impact. The field of altmetrics [9] deals with such potential indicators and their practical use to measure the popularity or impact of academic papers through social media. In order to conduct this measurement, altmetrics requires access to user data from social media platforms - which leads us to the second dimension of social media in academia.

1.2 Social media as a source for research data

The second part of this special issue shifts the focus from using social media in everyday academic work to the use of social media data in order to study other peoples' behavior in online environments and beyond. Researchers are developing methods and approaches to analyze social media data in order to answer research questions in various disciplines.

Social media data increasingly have gained popularity as a subject of studies in computer science and information science. However, data gathered from these sources can provide insights into communication patterns, user networks and other dimensions of human behavior; thus, they also are of interest for researchers in sociology, psychology, political sciences, linguistics, physics, medical science and economics. This diversity provides novel opportunities for interdisciplinary projects and new research fields, such as web science [3], computational social science [5] and digital humanities [1]. Approaches include the study of political communication in social networks, crisis communication during natural disasters, health information retrieval in online communities and many more.

Dealing with data collected from social media does not simply require computational skills; it also brings about novel challenges in establishing shared methods that satisfy scholarly standards and legal frameworks. Approaches may face technical challenges in data collection and data manipulation as well as methodological challenges in data analysis (e. g. in ensuring data quality, expressiveness and representativeness). Ethical issues also may emerge when working with user data. Social media data studies are considered big data research in some fields [2]. Although they rarely require super computers for analysis, social media datasets can reach considerable sizes that become too large for some computer programs, let alone for manual analyses.

2 Outline of this special issue

This special issue on Social Media in Academia has brought together submissions from various backgrounds and from very different perspectives, many of them not directly computer science-related. These submissions reflect the multi-disciplinarity of current social media research in general. Yet, implications for computer science and information technology reside both in the effects social media have on academia in general (in terms of human-computer interaction) and in the capabilities of social media researchers (in terms of technical skills in data manipulation).

Of the six papers assembled in this special issue, the first three refer to the dimension of social media used in everyday working environments; the other three deal with social media as a new source of research data. The issue includes papers presenting original research results as well as those that outline current trends and developments in the field.

Social media and their influence on scholarly communication and academic working environments are discussed for three environments: a) scholarly publishing, b) teaching and c) research infrastructure.

Stefanie Haustein, Vincent Larivière, Mike Thelwall, Didier Amyot and Isabella Peters study how references to scientific papers are being shared in two different social media environments: Twitter and Mendeley. Their work, thus, is a comparative study in the area of altmetrics and leads to detailed insights into how Twitter and Mendeley reflect scholarly publications' popularity in very different ways.

While the potential of social media in e-learning environments and in various educational settings has been discussed elsewhere, there is so far little discussion on the practices of faculty and student interaction on social networking sites. Carolyn Hank, Andrew Tsou, Cassidy Sugi- moto and Jeffrey Pomerantz address this topic in their paper. They use qualitative interviews with faculty and information from curricula websites to provide a first analysis of interaction preferences and practices.

With changing practices in academia, the respective research infrastructure also may need to change. Klaus Tochtermann illustrates how scientific libraries are affected by the growing importance of the Internet as a tool for information retrieval, by new publication formats and by the demand for open access to publications and research data. His paper is a conceptual vision for new types of libraries in a science 2.0 environment, highlighting the new role of information technologies in scientific libraries.

We then approach the challenges of social media data as new types of research data with three different levels of granularity.

Panagotis Takis Metaxas and Eni Mustafaraj provide a general introduction to thinking about social media as a source for research data using metaphors from the domain of gold-seeking. They develop different categories for social media analyses and highlight the chances and challenges related to each of them.

Axel Bruns and Stefan Stieglitz have similar objectives but go into more detail for one single social media platform, Twitter. Data from Twitter are comparatively easy to obtain for researchers, and therefore, have become a popular source in social media-based data science. Yet, despite their popularity, several challenges remain unsolved in handling Twitter data and in understanding their rep-resentativeness. The authors address these issues by explaining what kinds of data are available from Twitter and what research questions they may answer.

After these two different overviews on social media data usage, we close the special issue with a specific case study from Taha Yasseri and Jonathan Bright, who work with data from Wikipedia and Google. The authors selected the domain of election studies and predictions, which is quite popular in social media research. They, however, have used two different data sources, and they compare elections from three different countries. Such comparative approaches remain rare in social media-based election research. More of such comparisons and cross-platform studies are needed, as this paper demonstrates how results differ for each of the cases.

All six papers contribute to this special issue with unique views on how social media is used in academia. Both scholarly communication in social media and social media as research data will continue to be studied from various perspectives, and we expect more exciting developments in both fields in the future. Many thanks to all of the authors for their contributions. We hope that readers will enjoy them as much as we did!

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